# Plot Study

This lesson is designed for 3-8 grades. This lesson is a project by participants of a summer workshop at the Grant-Kohrs Ranch.
Dan and Cheryl

Science standards:

Content Standard 1 – Students design, conduct, evaluate and communicate scientific investigations.

Content Standard 3 – Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, , and how living organisms interact with each other and their environment.

Objectives:

1. Students will identify organisms, which will include plants, animals and fungi.
2. Students will understand on a larger scale the organisms that would be found in a given area using math and science.

Background:

Students are often asked to solve problems in a math or science classroom. These problems sometimes seem disjointed from the outside world. This activity centers on the real world application.

This lesson will gather information from a natural environment and allow students to apply the information to make an estimate of the life forms present on a larger scale.

Application:

Students will use a plot of one square yard. They will inventory an area and determine what living organisms are present. They will identify, count and calculate using the information gathered in the plot.

Duration: 2 class periods (2hours)

Materials: Plastic square 1 square yard (plumbing supplies)

Paper / pencil / clipboard with chart

Calculator

Dress for outside activity

Questions for thought: (Conversation with teacher and students)

1. How big is one square yard? How big is one acre? How would we measure this?
2. How many plants could you find in one acre? (animals or other living organisms)
3. How could we do this? Let's make some estimates.

Procedure:

Students will be given a plastic pipe frame of one square yard.

They will have a clipboard and chart to inventory the area inside the

pipe frame.
Using field guides, students will identify plants, animals, and fungi
found in the frame and record this information in a chart.
Using the number of organisms found in the pipe frame, students will
calculate the number of organisms projected to one acre.


Student name_____
Example:
Let's take an example of 3 ants.
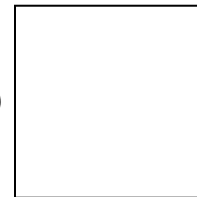We found three ants in our plot. How many could we find in one acre?

Calculations – Let's project our information over one acre. To do this what do we
need to know? (How many square yards are there in one acre?)

(3 ft.)

One square yard is 3 feet by 3 feet.

Use your calculator to find the number of square     (3 ft.)
feet in one square yard.
3 x 3 = 9 So there are 9 square feet in one square
yard.
Now, let's calculate the number the square feet in one acre.
We know that an acre is approximately 209 feet x 209 feet.
So… If we multiply 209 x 209 we get_____?(**A**)


This gives us the number of square feet in an acre. How can we change the number
of square feet to square yards? (Remember there are 9 square feet in one square
yard.)
Divide (A) by 9 =_____square yards(**B**)


Finally, all we need to do is count the number of organisms and multiply by the
answer we got at (B).

# of organisms in a square yard **x (B)** = # of organisms in an acre
3 x 4,853 = 14,559 ants!!!!/ Acre


Estimate how many animals would be found in one acre_____
Estimate how many plants would be found in one acre_____
Estimate how many fungi would be found in one acre_____


Set up your plot and let's go. Record the number of different types of
organisms. How can we identify animals? What does a plant look like? And last,

what is a fungus? Count the number of each in your plot and write the number in the chart.

| Animals | How many? | Plants | How many? | Fungi | How many? |
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Multiply the number of each by the value you calculated at (B)
Use the calculation page.

| Animals | How many? | Plants | How many? | Fungi | How many? |
|---|---|---|---|---|---|
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Conclusion: Write a paragraph comparing the number of organisms that you found in your plot to the number calculated found in one acre.

Calculation Page:
Take the number of organisms that you found in your plot and multiply each by the value you calculated at (B)

Animals



Plants



Fungi



Enrichment:  How would this plot look different in a desert or a forest?
What other plants, animals or fungi would be found in these areas?